Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 15 of the Commission's	)	RM-11812
Rules to Allow Higher Power Operation for	)	
P2MP, Consistent with the P2P System	)	
Power Limits	)	

NCTA – THE INTERNET & TELEVISION ASSOCIATION
COMMENTS ON PETITION FOR RULEMAKING

Radwin seeks changes to the rules for point-to-point operation in the 5 GHz band that would authorize devices emitting multiple simultaneous or sequential beams to operate at the much higher power levels typically reserved for directional fixed point-to-point devices. This presents significant concerns regarding the potential for harmful interference to existing operations, including Wi-Fi, in the 5 GHz band. Radwin suggests that its proposed changes will align the 5 GHz rules for point-to-multipoint (P2MP) operation with corresponding rules in the 2.4 GHz band. However, Radwin's proposed rule changes do not reflect the narrative's focus largely on rural areas, and in fact, would open the door to much broader implementations with serious potential to degrade current operations in the U-NII bands. The proposed changes also do not contain the 2.4 GHz limits relating to P2MP operation, which balance higher permitted power levels with upper limits on total power and/or appropriate reductions in power corresponding to increases in antenna gain. The Commission should carefully evaluate the potential interference impact of the rule changes on widely deployed Wi-Fi operations in the 5 GHz band in light of the need for substantial safeguards, and any proposed rule change should exclude *simultaneous* P2MP transmissions.

Radwin seeks modification of Section 15.407 of the rules to allow devices that emit

multiple directional beams sequentially *or* simultaneously in the 5150-5250 MHz (U-NII-1) and 5725-5850 MHz (U-NII-3) bands to operate at the power limits allowed today only for highly directional point-to-point systems in those bands.[1] Radwin's proposed rule changes are broad, sweeping in devices that employ simultaneous multiple directional beams.[2] Radwin acknowledges that "[t]raditional point-to-multipoint devices with sectorized antennas use very wide beams, which radiate at wider angles, constantly transmitting into the entire sector, creating the potential for more interference to neighboring devices and making them more susceptible to interference from other devices."[3] However, its proposed rule changes do not distinguish between transmitters emitting multiple simultaneous beams, including sectorized antennas, and phased array antennas with electronic steering capabilities that transmit multiple sequential beams.

P2MP base stations that transmit multiple *simultaneous* directional beams, including sectorized antennas, can be deployed to cover up to 360 degrees. In this configuration, the interference potential of the device may more closely resemble an omnidirectional antenna, rather than the narrow, directional beams associated with fixed point-to-point systems. Accordingly, the Commission should not take up Radwin's proposal to consider allowing P2MP transmitters with *simultaneous* multiple directional beams to operate at the much higher power

---

1 RADWIN LTD. Petition for Rulemaking Regarding Amendment of Part 15 of the Commission's Rules to Advance Improved Broadband Services in the U-NII-1 and U-NII-3 Bands, RM-11812, at 2, 4 (filed June 18, 2018) (Petition).

2 Petition at 4 n.6 & Appendix A. This appears broader than necessary to accommodate the sequential multiple directional beam equipment that Radwin has described. *Id.*

3 *Id.* at 2.

levels for fixed point-to-point devices as Radwin requests, and should limit its consideration to rule changes for *sequential* P2MP systems.

Radwin argues that the 5 GHz rule modifications it seeks are "consistent with treatment of 2.4 GHz broadband devices,"[4] but the 2.4 GHz rules for fixed P2MP operations contain power limits to foster coexistence among unlicensed users of the band that Radwin's proposed rules lack. First, the 2.4 GHz rules distinguish between P2MP equipment that emits sequential directional beams and multiple simultaneous beams.[5] As discussed above, this makes sense given the very different interference potential of these two categories of fixed P2MP device. Second, the 2.4 GHz rules balance higher permitted power levels with upper limits on total aggregate power and/or appropriate reductions in power corresponding to increases in antenna gain. For example, the 2.4 GHz rules provide that for devices emitting sequential directional beams, the power supplied to all antennas is typically limited to 1 W (30 dBm), and must be "reduced by 1 dB below the specified limits for each 3 dB that the directional gain of the antenna/antenna array exceeds 6 dBi."[6] The rules for simultaneous-beam P2MP equipment operating in 2.4 GHz provide that the same power limits apply to each emission beam and, if simultaneous beams overlap, the power must be reduced to ensure that the aggregate power of the beams does not exceed the limit applicable to P2MP sequential beam equipment.[7] The rules

---

4 *Id.* at 5 (capitalization omitted).

5 47 C.F.R. § 15.247(c)(2)(ii)-(iii). Note that both sections governing operation of 2.4 GHz P2MP equipment are distinct from the rules for 2.4 GHz fixed point-to-point operations. *Compare* 47 C.F.R. § 15.247(c)(2)(ii)-(iii) *with* 47 C.F.R. § 15.247(c)(1)(i).

6 47 C.F.R. § 15.247(c)(2)(ii) (referencing back to the general power limits established for intentional radiators in the 2.4 GHz band (§ 15.247(b)(1) & (b)(3)).

7 *Id.* § 15.247(c)(2)(iii).

also "limit the aggregate power transmitted simultaneously on all beams to 8 dB above the limit for an individual beam."[8]

In contrast, Radwin seeks to allow *both* sequential and simultaneous P2MP equipment to operate at the higher power limits for fixed point-to-point operations in the U-NII-1 and U-NII-3 bands. In U-NII-1, Radwin's proposed changes would allow *all* P2MP devices (simultaneous- and sequential-beam) to operate at 1W with a 23 dBi antenna (for a maximum EIRP of +53 dBm) before devices must begin reducing conducted power for corresponding increases in antenna gain.[9] In U-NII-3, the proposed rules would be even more permissive, allowing P2MP devices to operate with unlimited EIRP because no reduction in transmitter conducted power is required as directional antenna gain increases.[10]

Allowing such high power operations without appropriate limits presents a significant threat of harmful interference to existing, widely deployed Wi-Fi operations, particularly in congested urban and suburban markets. NCTA applauds the goal of enhancing broadband access in rural communities,[11] and therefore urges FCC consideration to be limited to only rural areas. Rule changes to facilitate rural deployment, however, must not come at the expense of increasing the interference experienced by widely deployed Wi-Fi operations.

Wi-Fi is critical to businesses, students, library patrons, and cable customers—Cisco

---

8 *Modification of Parts 2 and 15 of the Commission's Rules for Unlicensed Devices and Equipment Approval*, Report and Order, 19 FCC Rcd 13,539, 13,541 ¶ 9 (2004); 47 C.F.R. § 15.247(c)(2)(iii).

9 *See* Petition at Appendix A; 47 C.F.R. § 15.407(a)(1)(iii).

10 *See* Petition at Appendix A; 47 C.F.R. § 15.407(a)(3).

11 *See* Petition at 9-11.

predicts that Wi-Fi will carry 52 percent of U.S. Internet traffic by 2021.[12] Unlicensed technologies like Wi-Fi, including those that operate in the 5 GHz band, are also substantial drivers of economic growth, contributing $525 billion to the U.S. economy in 2017.[13] These important, existing uses and associated investment could be jeopardized if the Commission permits high powered use of the 5 GHz band indiscriminately among P2MP systems.

For the foregoing reasons, the Commission should carefully evaluate the potential interference impact of the rule changes on widely deployed Wi-Fi operations in the 5 GHz band and how best to ensure there is no impact to existing operations.

Respectfully submitted,

/s/ Rick Chessen

_____

Rick Chessen
Danielle J. Piñeres
NCTA – The Internet & Television Association
25 Massachusetts Avenue, NW – Suite 100
Washington, DC 20001-1431
(202) 222-2445

July 30, 2018

---

[12] Cisco, *VNI Forecast Highlights Tool 2016-2021*, https://www.cisco.com/c/m/en_us/solutions/service-provider/vni-forecast-highlights.html (select "United States" from the North America drop-down menu, click the radial button for "Wired Wi-Fi Mobile Traffic" and expand the "Fixed/Wi-Fi" header).

[13] Raul Katz, *A 2017 Assessment of the Current & Future Economic Value of Unlicensed Spectrum in the United States* 1 (Apr. 2018), http://wififorward.org/wp-content/uploads/2018/06/WFF_Katz_Economic_Report_2018.pdf.

CERTIFICATE OF SERVICE

I, Sarah Speaks, hereby certify that on this 30th day of July 2018, I served one copy of the foregoing Comments on Petition for Rulemaking by U.S. mail on the following parties:

Russel H. Fox
Laura Stefani
Mintz, Levin, Cohn, Ferris,
Glovsky, and Popeo, P.C.
701 Pennsylvania Avenue, N.W.
Suite 900
Washington, D.C. 20004
Counsel for RADWIN LTD.

/s/ Sarah Speaks